

Scientific Computing

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CBC Talk on Epigenetics, Stem cells and Data Mining - September 25, 2014

On 25.9 at 13:00, Eivind Lund, who is a PhD candidate from UiO, will be giving a talk about his work on epigenetics and stem cell research in Bakrommet.

Total number of participants: 12
Total number of guests outside of CBC: 1
Number of different nationalities represented: 6
Total number of speakers: 1
Total number of talks: 1

Abstract

DNA sequencing as a tool for understanding the identity, state and predicting the fate of a cell

The nuclear envelope consists of a double membrane that encloses the genetic material and segregates it from the cytoplasm in eukaryotes. The nuclear lamina, a meshwork of intermediate filament proteins called lamins, lies subjacent to the inner nuclear membrane and provides mechanical stability to the nucleus. The lamina interacts with chromatin, and has been proposed to contribute to organizing chromatin.

Mutations in the LMNA gene, encoding A-type lamins, have been linked to multiple disorders collectively called laminopathies. An intriguing property of laminopathies is the relative specificity of tissues affected (e.g., adipose, muscle, peripheral nervous system) by specific point mutations in a protein expressed in virtually all tissues in the body. The diversity in disease phenotypes caused by LMNA mutations implies that the lamina is involved in more functions than the mechanical structure that it is known to provide.

Concomitantly, technological advancements have made it possible to study interactions between proteins and chromatin in a genome-wide manner. However, many chromatin-interacting proteins remain difficult to analyze by chromatin immunoprecipitation (ChIP).

My PhD thesis describes (i) a novel domain detection algorithm for ChIP-seq data (ChIP followed by DNA sequencing) (ii) an analysis of chromatin states in Lamin A/C-interacting promoters during adipogenic differentiation, and (iii) implications of two different modes of chromatin fragmentation for ChIP (enzymatic digestion and sonication) on the detection by ChIP-seq of Lamin A-interacting domains and their properties.

What	
When	Sep 25, 2014 from 01:00 PM to 02:00 PM
Where	Bakrommet @ Simula
Contact Name	Gabriel Balaban
Attendees	Andre Massing August Johanson Eivind Lund Gabriel Balaban Johanne Ring Kent Andre Mardal Magne Nordaas Marie Rognes Molly Maleckar Øyvind Evju Simon Funke Valeriya Neumova
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